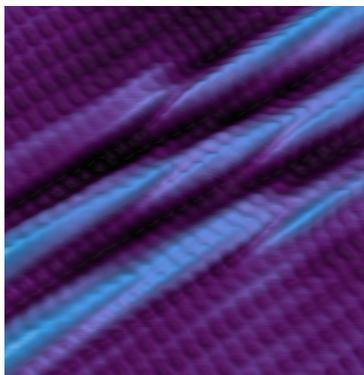


Scientific Contacts

Saw Wai Hla (Group Leader), shla@anl.gov
- LT-STM, SP-STM, AFM
Anand Bhattacharya, anand@anl.gov,
- oxide MBE
Seth Darling, darling@anl.gov
- solar energy, organic PV, AFM, QEMS
Brandon Fisher, bfisher@anl.gov,
- magnetometry, STM/SEM, XRD
Jeffrey Guest, jrguest@anl.gov
- UHV STM, AFM, ultrafast microscopy
Nathan Guisinger, nguisinger@anl.gov
- UHV STM, AFM, 2-D materials
Xiao-Min Lin, xmlin@anl.gov
- synthesis of nanocrystal building blocks
Dan Rosenmann, rosenmann@anl.gov
- evaporation, deposition, sputtering, MBE

Quantum & Energy Materials



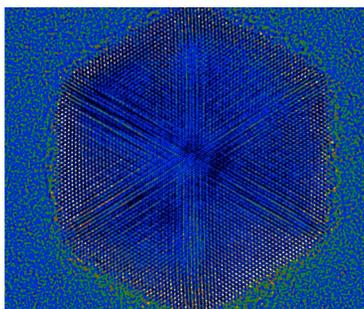
Major Tools

- UHV SPM (AFM/STM) (Omicron Nanotechnology)
- 4-probe SEM (Omicron UHV Nanoprobe)
- VT-AFM (Omicron XA), LT-STM
- Scanning probe microscope, AFM (Veeco)
- Complex Oxide MBE (DCA R450D Custom)
- Kurt Lesker electron beam evaporator and sputtering, deposition
- Magnetometry (QD PPMS & MPMS)
- Solar simulator, QEMS (Oriol)
- TGA/DSC
- Luminescence/UV-vis-NIR
- X-ray diffractometer (Bruker D2 & D8)

Scientific Contacts

Dean Miller (Group Leader), miller@anl.gov
- oxide thin film and self-assembled synthesis
Rachel Koritala, koritala@anl.gov
- SEM/TEM trainer
Joyce Wang, jiewang@anl.gov
- EMC Facility Manager
Jianguo Wen, jwen@anl.gov
- ACAT, batteries, PV
Nestor Zaluzec, zaluzec@aaem.amc.anl.gov
- transmission, scanning transmission, and analytical electron microscopy (FEI Tecnai)

Electron Microscopy Center



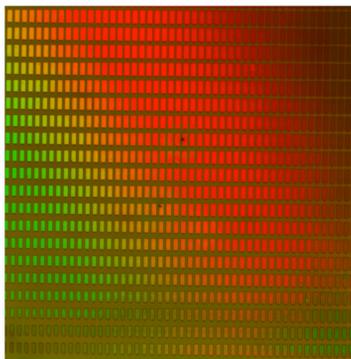
Major Tools

- ACAT: Argonne Chromatic Aberration-corrected TEM
- FEI Tecnai F20ST TEM/STEM
- Zeiss 1540XB FIB-SEM
- FEI CM30T, analytical transmission electron microscope
- Hitachi S-4700-II high-vacuum SEM
- FEI Quanta 400F environmental and variable-pressure SEM

Scientific Contacts

Daniel Lopez (Group Leader), dlopez@anl.gov
- MEMS/NEMS technology
David Czaplewski, dczaplewski@anl.gov
- MEMS/NEMS, ICP CVD
Ralu Divan, divan@anl.gov
- lithography, nanogels, MEMS/NEMS
C. Suzanne Miller, csmiller@anl.gov
- stepper, XeF2, evaporator, RTP, dicing saw
Leo Ocola, ocola@anl.gov
- nanofabrication, electron beam lithography
Liliana Stan, lstan@anl.gov
- ALD, PVD, sputtering, evaporation
Anirudha Sumant, sumant@anl.gov
- diamond-based NEMS, CNT, graphene
Il Woong Jung, ijung@anl.gov
- focused ion beam lithography

Nanofabrication & Devices



Major Tools

- JEOL 9300, 100kV electron beam lithography
- Raith 150, 30kV electron beam lithography
- FEI Nova 600 NanoLab DualBeam FIB/SEM
- Karl Suss MA6 Optical mass aligner
- ASML PAS 5000 wafer stepper
- Direct write optical lithography
- Interferometric lithography
- AJA oxide sputtering
- Wet chemistry & metrology
- Xactix XeF2 etcher
- SPM, PSIA XE-HDD
- Deposition (ebeam evaporator and sputtering, atomic layer deposition (ALD))
- Lambda microwave plasma CVD nanocrystalline diamond
- Thermal/PECVD for CNT/graphene synthesis

Scientific Contacts

Gary Wiederrecht (Group Leader),
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- optical microscopy, transient absorption/emission spectroscopy

Chris Fry, hfry@anl.gov

- synthesis, peptide synthesis, HPLC, CD
David Gosztola, gosztola@anl.gov

- lasers, Raman microscopy

Yuzi Liu, yuziliu@anl.gov

- analytical TEM

Xuedan Ma, xuedan.ma@anl.gov

- single molecule/particle spectroscopy

Elena Rozhkova, rozhkova@anl.gov

- bio(in)organic, biological chemistry, synthetic biology, GC/MS

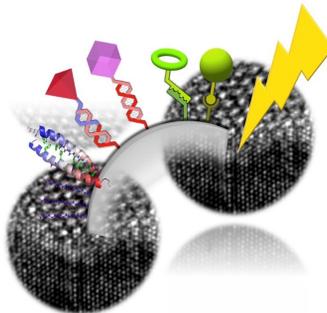
Richard Schaller, schaller@anl.gov

- transient absorption/emission spectroscopy

Elena Shevchenko, eshevchenko@anl.gov

- 2-D and 3-D nanoparticle assembly, SEM

Nanophotonics & Biofunctional Structures



Major Tools

- Ultrafast transient absorption spectroscopy
- Confocal Raman microscope, Renishaw
- VIS/NIR microscopy
- Time-resolved emission spectroscopy
- Time-correlated single photon counting
- Ultrafast microscope
- FTIR (Thermo-Nicolet)
- Fluorescence spectroscopy
- Field-emission TEM (JEOL 2100F)
- Field-emission SEM (JEOL JSM7500F)
- Electron paramagnetic resonance (Bruker)
- Circular dichroism spectrometry
- Functionalization, electro/photochemical
- HPLC, GCMS
- Laser Scanning Confocal Microscope (Zeiss)
- Post-self-assembly processing
- Peptide synthesizer
- Synthesis & surface modification of nanoparticles
- ZetaSizer Nano, Malvern

Scientific Contacts

Stephen Gray (Group Leader), gray@anl.gov

- nanophotonics, electrodynamics

Maria Chan, mchan@anl.gov

- photovoltaics, photocatalysts, thermoelectrics, batteries

Pierre Darancet, pdarancet@anl.gov

- photovoltaics, optical transport

Michael Sternberg, sternberg@anl.gov

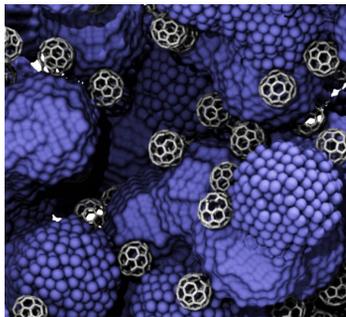
- software development

Subramanian Sankaranarayanan,

- ssankaranarayanan@anl.gov

- nanoscale oxide energy materials

Theory & Modeling



Major Tools

- Nanoscience Computational Facility
30 TFlop cluster for:
Density-functional-based tight-binding (DFTB) electronic structure package
Time-domain nanophotonics simulation
MPI-based parallel versions of nanophotonics and tight-binding codes
GPAW; real space, grid-based DFT-PAW
- Access to Argonne computer facilities
- Support for experimental projects
- Support for theoretical projects

Scientific Contacts

Ian McNulty (Group Leader), mcnulty@anl.gov

- diffraction, holography, x-ray microscopy, optics

Martin Holt, mvholt@anl.gov

- x-ray diffraction and fluorescence

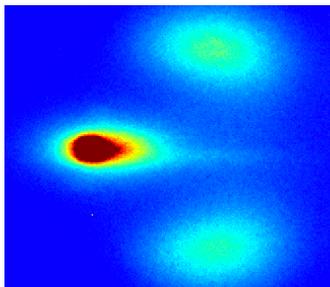
Volker Rose, vrose@anl.gov

- synchrotron x-ray scanning tunneling microscopy

Robert Winarski, winarski@anl.gov

- x-ray imaging and tomography

X-ray Microscopy



Major Tools

- Hard X-ray nanoprobe beamline, sector 26 of APS
- Scanning nanodiffraction and ptychography
- Chemical and structural nanoimaging
- Heating/cooling specimen stage
- 30 nm resolution, 6 - 12 keV
- In situ/in operando experiments
- Synchrotron x-ray STM (SX-STM)